



CXO FOCUS

5G ADVANCES THE DIGITAL BUSINESS OPPORTUNITY

ASIA IS PAVING THE WAY FOR 5G TO DELIVER NEW
AND MORE SUSTAINABLE WAYS OF WORKING AS
5G-ADVANCED BECOMES AVAILABLE

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When new network and communications technologies hit the market, the increase in capacity is often the main focus.

With 5G-Advanced, the latest iteration of 5G mobile communications, CXOs will, of course, get more capacity. More importantly, 5G-Advanced has the potential to play a role in ensuring technology is more sustainable and will power new methods and business models.

Announced in 2022, 5G-Advanced is the second phase of the development of 5G communications. The GSMA, the body for mobile communications standards, says 5G-Advanced: “brings

a new wave of wireless innovations that will push technology boundaries in three broad directions: performance improvements, better management, greater efficiency, and enhancement for specific use cases.”



One area where CXOs can expect to see major improvements is in uplink communications when in use at high speeds, for example, on trains. In addition, the GSMA says 5G-Advanced will boost the use of interactive technologies, such as immersive digital twin systems, as well as gaming.

Demand for 5G is strong. Research firm GlobalData finds that 5G subscriptions will surpass 4G in 2026, with 5G becoming 62% of the total global mobile subscriptions in that year. It says this will be achieved through the continued expansion of the 5G networks around the world and a rise in the number of 5G-compatible devices available to organizations and individuals. This will increase the level of data usage too. “The average monthly mobile data usage is expected to increase drastically from 20.4GB per month in 2022 to around 55.5GB per month in 2027, driven by the growing consumption of high-bandwidth online entertainment and social

media content over smartphones,” says Kantipudi Pradeepthi, Telecom Analyst at GlobalData.

However, the growth of 5G was hampered by the Covid-19 pandemic in the early years of this decade. Just 20 new 5G networks were launched in 2022, according to industry research firm Kagan. “Expensive capital expenditure requirements and the current adverse economy are just some of the many factors slowing down the deployment of new 5G networks, especially stand-alone 5G,” the Kagan study says.

Asia is leading the adoption of 5G, especially China. Speaking at last year’s Mobile World Congress, China Mobile Communications Group Chairman Yang Jie said: “By the end of 2022, we are expected to roll out a total of over 1 million 5G base stations with subscribers using 5G networks to exceed 330 million. And 5G commercial use cases to be more than 10,000.”



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New business models

China’s adoption of 5G is leading to the Asian economic superpower being the first to develop new business use cases for 5G-Advanced. Nan Hu, Vice Director, Tech Research at China Mobile, told the GSMA that they saw 5G developments in mining, manufacturing, energy, and logistics industries.

“We see opportunities for instant-upload; for example, when a train comes into a station with lots of data,

it can do an upload very quickly,” adds Benoit Graves, Head of Radio Access Network Strategy at Orange, the major French telecommunications provider. Instant-upload will provide organizations with a wealth of almost real-time data. This will lead to more accurate and timely decision-making, enabling predictive maintenance of a train or deeper insights into customer behavior.

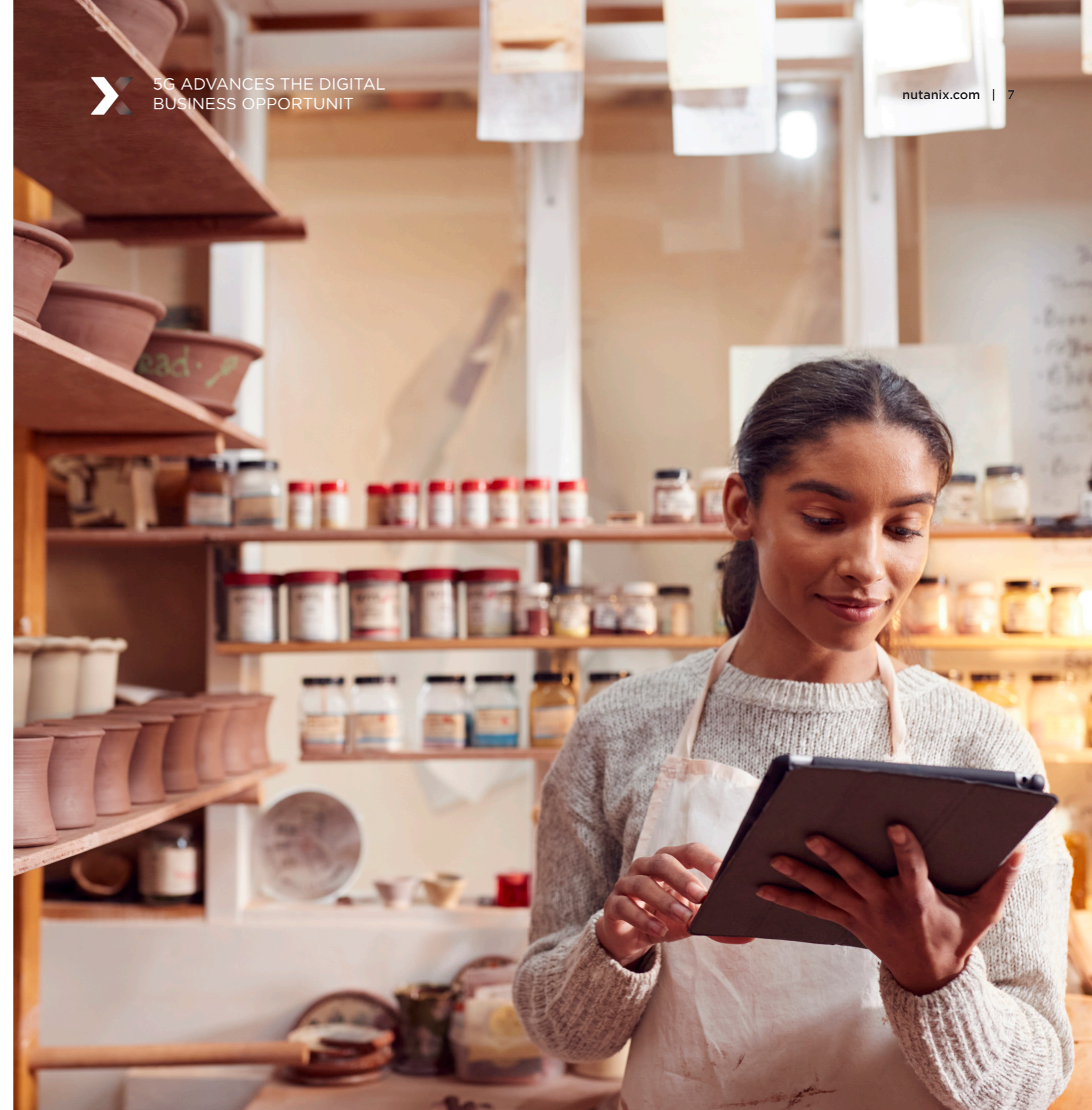


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Nan Hu at China Mobile says 5G-Advanced will be the underpinning networking for some major technological developments. “Cross-layer technology will be the bridge between cyberspace and the real world. In 2025 there will be 70 million virtual reality (VR) users. This will require low latency connectivity.” He adds that as the internet of things (IoT) grows, integrated sensing will use 5G-Advanced to improve autonomous vehicles and that IoT will grow in sectors such as medical services, retail, and agriculture.

Pekka Lundmark, Chief Executive and President of Nokia, the mobile technology pioneer, wrote an article for the Financial

Times stating that 5G will be instrumental in the development and adoption of digital twin technology by businesses. “With a digital twin — an exact virtual replica — companies possess a real-time simulation to help them manage their operations while gathering data to drive performance.” Lundmark added: “The use of a digital twin, together with automation and other digital solutions, has helped us increase productivity by up to 30% in a year and cut product defects by 50% over four years.”



The CEO says CXOs need to view 5G as part of a series of technologies that will transform business operations and customer services. These include enterprise cloud computing, edge computing, artificial intelligence (AI), Blockchain, IoT, VR, augmented reality, 5G, and digital twins. All of these are complementary technologies, and for CXOs to benefit from them will require increased levels of collaboration with

business partners, technology providers, industry suppliers, and even the customer.

In addition, the GSMA believes 5G-Advanced will play an important role in the development of drone vehicles and the next generation of satellite services, leading to improved integration between satellite and terrestrial networks.



Sustainable connection

5G-Advanced is an important development for the technology industry as it looks to play a more active role in fighting the climate emergency. “Ultra-low energy devices using RFID (radio frequency identification) are coming, and they are low cost and low complexity,” says Graves at Orange. He adds that 5G-Advanced will enable mobile network operators to make savings in the provision of connectivity. Orange has stated it will reduce its carbon emissions by 30% by 2025 and produce

no carbon emissions by 2040. Graves adds that existing 4G networks provide ‘always on’ connectivity but that 5G will enable on-demand connectivity. “In low load usages, the transmissions can be more efficient. The antennas are quite power hungry, and this means they can be made more efficient,” he says. The GSMA adds: “5G-Advanced will also harness artificial intelligence and machine learning to enable efficient network configuration, operation, and optimization in a sustainable way.”

It is expected that as AI develops, 5G-enabled devices will be able to predict their workloads and manage connectivity and, therefore, energy usage. In the new sustainably aware economy, technology with reduced capabilities will not be a hindrance to business but will be beneficial in delivering efficiencies and a solution to the climate emergency. “5G-Advanced will further strengthen support for low cost, low power devices, such as industrial wireless sensors, smartwatches, and smart eyewear,” the GSMA says. “It will also support time-sensitive networks, timing-

as-a-service, precise network-based positioning, and enhanced positioning based on the Global Navigation Satellite System.”

CXOs should look beyond the increased network capacity that 5G brings. With 5G-Advanced, CXOs can work with technologies and networks that will enable the organization to embrace new methods of working and use digital twins, drones, and data technologies to be more effective and sustainable.



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